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EXAMINER	
TRAN, QUOC A	

ART UNIT	PAPER NUMBER
2176	

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/893,788	NOVAES, MARCOS NOGUEIRA	
	Examiner	Art Unit	
	Quoc A. Tran	2176	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23 and 32-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,11 and 15-34* is/are rejected.

7)☒ Claim(s) *8-10 and 12-14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/27/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to Amendment A, filed June 27, 2005.

2. Claims 1-23 and 32-34 are currently pending in this application. Applicant has amended independent claim 1 and added claims 32-34. Claim 1 is an independent claim.

Claim Rejections - 35 USC § 101

3. Claims 1-23, were rejected under 35 U S.C. 101, has been withdrawn since correction has been made.

Claim Rejections - 35 USC § 112

4. Claims 8-10 and 11-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter, has been withdrawn since correction has been made.

Allowable Subject Matter

5. Claims 8, 9, 10, 12, 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

6. **The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 1-7, 11, 15-16, 23 and 32-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Perrizo US 20030009467A1- provisional No. 60/234,050 - filed September 20, 2000 – (hereinafter Perrizo '467), in view of Ridgley US006583800B1 - filed July 07, 1999 – (hereinafter Ridgley '800).

In regard to independent claim 1, *"opening a first data block of a plurality of data blocks of interest, said plurality of data blocks being spatially indexed in N dimensions"*, as taught by Perrizo '467 page 1, paragraphs [0006]-[0007] and also see Figure 6 sheet 3 of 11 of Drawing (i.e...The data to be organized is preferably in the form of an n-dimensional array of binary data where the binary data is comprise of bits that are identified by a bit position within the n-dimensional array...data is structured by dividing each of the files containing the binary data into quadrants according to the bit position identification and recording the count of 1-bits for each quadrant on a first level. Then, recursively dividing each of the quadrants into further quadrants and recording the count of 1-bits for each quadrant until all quadrants comprise a pure-1 quadrant or a pure-0 quadrant to form a basic tree structure. This structure is similar to other quadrant tree structures but for individual bit positions within values rather than the values themselves...),

" and accessing a second data block of said second plurality of data blocks which is viewed to be closest to said first data block", as taught by Perrizo '467 page 18, paragraphs

[0226], [0222]-[0225] and [229] (i.e... Incremental ANDing of PC-trees produces immediate and incrementally improving upper/lower bounds for counts... PC-trees contain 1-count for every quadrant of every dimension (they are data-mining ready)... any sub-quadrant at any level is simple to extract (it need not be rebuilt)... PC-trees can be combined to produce any needed data structure, including the original data...K-nearest neighbor (KNN) classification method, the k-nearest neighbors (under some distance metric), of the sample to be classified, are found by scanning the entire data set),

".... a closeness relationship between said first data block opened and a second plurality of data blocks based on their content", as taught by Perrizo '467 at page 18, paragraphs [0226], [0222]-[0225] and [229] (i.e... Incremental ANDing of PC-trees produces immediate and incrementally improving upper/lower bounds for counts... PC-trees contain 1-count for every quadrant of every dimension (they are data-mining ready)... any sub-quadrant at any level is simple to extract (it need not be rebuilt)... PC-trees can be combined to produce any needed data structure, including the original data...K-nearest neighbor (KNN) classification method, the k-nearest neighbors (under some distance metric), of the sample to be classified, are found by scanning the entire data set);

Perrizo '467 does not explicitly teach, *" viewing ... "* of a closeness relationship between said first data block opened and a second plurality of data blocks based on their content, however as taught by Ridgley '800 at col.2, lines 30-50 (i.e.... An information appliance is disclosed which is divided into a CONTENT area for viewing and interacting directly with the content of information units, which in the best mode implementation is further divided into a three-by-three array of content sub-areas, and a base or monitor area consisting of a CONTEXT area for

identifying the immediate context of the information displayed in the content area, an IDENTITY area for identifying and storing the history of prior information contexts, and a DESIRE area for collecting and acting upon selected units of information, in accordance with the desires of the user...).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Ridgley '800 into Perrizo '467 to provide a way, wherein viewing a closeness relationship between said first data block opened and a second plurality of data blocks based on their content is included. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 2, incorporate substantially similar subject matter as cited in claim 1 above, and in further view of the following, and is similarly rejected along the same rationale;

"... based on a calculation of a distance function", as taught by Perrizo '467 at page 19 paragraph [0233] (i.e... often called a similarity function, such as distance...),

Perrizo '467 does not explicitly teach, *"...and without traversing a hypertext link, and without subsequently accessing a prior search results page"*, however as taught by Ridgley '800 at col.2, lines 30-50 (i.e.... An information appliance is disclosed which is divided into a CONTENT area for viewing and interacting directly with the content of information units, which in the best mode implementation is further divided into a three-by-three array of content sub-areas, and a base or monitor area consisting of a CONTEXT area for identifying the immediate context of the information displayed in the content area, an IDENTITY area for identifying and storing the history of prior information contexts, and a DESIRE area for collecting and acting upon selected units of information, in accordance with the desires of the user...).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Ridgley '800 into Perrizo '467 to provide a way, wherein viewing a closeness relationship between said first data block opened and a second plurality of data blocks based on their content without traversing a hypertext link, and without subsequently accessing a prior search results page. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes

are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 3, *"each time a data block is accessed, building a proximity list indicating a closeness of another plurality of data blocks to the data block accessed currently, such that the user traverses data blocks horizontally to find a most relevant data block to information sought"*, however as taught by Ridgley '800 at col.2, lines 30-50 (i.e.... An information appliance is disclosed which is divided into a CONTENT area for viewing and interacting directly with the content of information units, which in the best mode implementation is further divided into a three-by-three array of content sub-areas, and a base or monitor area consisting of a CONTEXT area for identifying the immediate context of the information displayed in the content area, an IDENTITY area for identifying and storing the history of prior information contexts, and a DESIRE area for collecting and acting upon selected units of information, in accordance with the desires of the user...).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Ridgley '800 into Perrizo '467 to provide a way, wherein each time a data block is accessed, building a proximity list indicating a closeness of another plurality of data blocks to the data block accessed currently, such that the user traverses data blocks horizontally to find a most relevant data block to information sought. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the

establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 4, *"wherein N is a number of words or subjects in a selected corpus",* as taught by Perrizo '467 page 19, paragraph [0233] (i.e...Given a database of n objects and k, the number of clusters to form, a partitioning technique organizes the objects into k partitions (k n), where each partition represents a cluster. ....).

In regard to dependent claim 5, *"inputting, by a user, an input indicating a search to be performed the input including a collection of data blocks which are to be indexed, said data blocks selectively containing data, metadata, and links to other data blocks",* however as taught by Ridgley '800 at col. 15, line 65 through col.16, line 45 (i.e... Selection of the Yellow Pages item 902 produces an alphabetical range presentation shown in FIG. 9C. If the user is seeking "restaurants", that would be found in the selection 903, "Photographers to Zoos". CLARIFICATION continues in FIG. 9D with the selection 904 of "Recording to Restaurants" and in FIG. 9E with the selection 905 of "Restaurant Equipment to Restaurants." Note that in FIG. 9F there are only four options shown within the "Restaurant Equipment to Restaurants" range. Upon selection 906 of "Restaurants" another alphabetical list--this time of restaurant names--appears as shown on FIG. 9G....).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Ridgley '800 into Perrizo '467 to provide a way, wherein inputting, by a user, an input indicating a search to be performed the input including a collection of data blocks which are to be indexed, said data blocks selectively containing data, metadata, and links to other data blocks. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 6, *" and a collection of text strings 1 to N is input, said text strings being used as search criteria in a spatial indexing process",* as taught by Perrizo '467 page 19, paragraph [0233] (i.e...Given a database of n objects and k, the number of clusters to form, a partitioning technique organizes the objects into k partitions (k n), where each partition represents a cluster. ....).

Perrizo '467 does not explicitly teach, *"wherein the user further inputs a search depth defining how many links are to be followed during a search process"*, however as taught by Ridgley '800 at col. 15, line 65 through col.16, line 45 (i.e.... FIG. 9A begins the sequence with

a display of "Interactive Computer Net, Inc.", which may be an Internet Service whose selection 901 provides access to the Yellow Pages in Northern Virginia, as shown in FIG. 9B. Selection of the Yellow Pages item 902 produces an alphabetical range presentation shown in FIG. 9C. If the user is seeking "restaurants", that would be found in the selection 903, "Photographers to Zoos". CLARIFICATION continues in FIG. 9D with the selection 904 of "Recording to Restaurants" and in FIG. 9E with the selection 905 of "Restaurant Equipment to Restaurants." Note that in FIG. 9F there are only four options shown within the "Restaurant Equipment to Restaurants" range. Upon selection 906 of "Restaurants" another alphabetical list--this time of restaurant names--appears as shown on FIG. 9G....).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Ridgley '800 into Perrizo '467 to provide a way, wherein the user further inputs a search depth defining how many links are to be followed during a search process. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 7, *"creating, for each data block given as an input, an index record for storing search results which relate each said data block to each of the strings in the collection; and creating a global index record array which contains index records for each of the data blocks given as an input"*, however as taught by Ridgley '800 at col. 15, line 65 through col.16, line 45 (i.e.... FIG. 9A begins the sequence with a display of "Interactive Computer Net, Inc.",.... provides access to the Yellow Pages in Northern Virginia, as shown in FIG. 9B. Selection of the Yellow Pages item 902 produces an alphabetical range presentation shown in FIG. 9C. .... with the best mode of implementing the invention. The CONTENT portion 110 of the grid is composed of a three-by-three array of squares 104 ..... the seed atom (e.g. searching feature) described in connection with FIG. 10A. ...).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Ridgley '800 into Perrizo '467 to provide a way, wherein creating, for each data block given as an input, an index record for storing search results which relate each said data block to each of the strings in the collection; and creating a global index record array which contains index records for each of the data blocks given as an input. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production

manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 11, incorporate substantially similar subject matter as cited in claim 2 above, and is similarly rejected along the same rationale.

In regard to dependent claim 15, *"positioning, by the user, a search focus and directing coordinates of a search",* as taught by Perrizo '467 at page 19 paragraph [0233] (i.e.... organizes the objects into k partitions (k n), where each partition represents a cluster. The clusters are formed to optimize an objective partitioning criterion, often called a similarity function, such as distance, so that the objects within a cluster are "similar", whereas the objects of different clusters are "dissimilar" in terms of the database attributes...).

In regard to dependent claim 16, *"....which shows a projection of the N-dimensional space into a plurality of dimensions",* as taught by Perrizo '467 page 1, paragraphs [0006]-[0007] (i.e...The data to be organized is preferably in the form of an n-dimensional array of binary data where the binary data is comprise of bits that are identified by a bit position within the n-dimensional array...);

Perrizo '467 does not explicitly teach, *"providing a graphical user interface",* however as taught by Ridgley '800 at col. 20, lines 15-30 (i.e.... *providing a graphical user interface...).*

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Ridgley '800 into Perrizo '467 to provide a graphical user interface. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected

relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 23, incorporate substantially similar subject matter as cited in claim 1 above, and in further view of the following, and is similarly rejected along the same rationale;

Perrizo '467 does not explicitly teach, *"...selectively providing documents with or without any inter-document links"*, however as taught by Ridgley '800 at col.2, lines 30-50 (i.e.... An information appliance is disclosed which is divided into a CONTENT area for viewing and interacting directly with the content of information units, which in the best mode implementation is further divided into a three-by-three array of content sub-areas, and a base or monitor area consisting of a CONTEXT area for identifying the immediate context of the information displayed in the content area, an IDENTITY area for identifying and storing the history of prior information contexts, and a DESIRE area for collecting and acting upon selected units of information, in accordance with the desires of the user...).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Ridgley '800 into Perrizo '467 to provide a way, wherein

selectively providing documents with or without any inter-document links. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 32, "*displaying information according to a location in an N-dimensional space*", Perrizo '467 at page 4, paragraph [0060]; also see Fig. 13, discloses a data cube such as Tuple Count Cubes or TC cube of the spatial dataset, Examiner read the above in the broadest reasonable interpretation to the claim limitation, wherein N-dimensional space would have been an obvious variant of cube of the spatial dataset to one of ordinary skill in the art at the time the invention was made sine cube is existing in multiple dimensional space.

In regard to dependent claim 33, *"wherein said closeness relationship comprises: a relationship of a Euclidean distance between points in an N-dimensional space"*, Perrizo '467 page 18, paragraph [0229], discloses a K-nearest neighbor (KNN) classification method, wherein the distance between KNN is measured using the Euclidean and Minkowski metrics), and also Perrizo '467 at page 4, paragraph [0060], also see Fig. 13, discloses a data cube such as Tuple

Count Cubes or TC cube of the spatial dataset, Examiner read the above in the broadest reasonable interpretation to the claim limitation, wherein N-dimensional space would have been an obvious variant of cube of the spatial dataset to one of ordinary skill in the art at the time the invention was made sine cube is existing in multiple dimensional space.

In regard to dependent claim 34, *"wherein said distance function comprises: a distance function in Euclidean space"*, Perrizo '467 page 18, paragraph [0229], discloses a K-nearest neighbor (KNN) classification method, wherein the distance between KNN is measured using the Euclidean and Minkowski metrics).

7. **Claims 17-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Perrizo US 20030009467A1- provisional No. 60/234,050 - filed September 20, 2000 – (hereinafter Perrizo '467), in view of Ridgley US006583800B1 - filed July 14, 19990 – (hereinafter Ridgley '800), further in view of Lipson et al. US006463426B1 - filed October 26, 19989 – (hereinafter Lipson '426).

In regard to dependent claim 17, *"displaying the projection in three dimensions obtained by first selecting all data blocks"*, as taught by Perrizo '467 page 3, paragraph [0044] (i.e... each quadrant is partitioned into sub-quadrants and their 1-bit counts in raster order constitute the children of the quadrant node. ... For instance, with 3-dimensional data, each level is partitioned into octants and so on...).

Perrizo '467 and Ridgley '800 do not explicitly teach, *"...in the space which have a non-zero value for coordinates (x, y, z), where x, y, and z are search criteria, and then by making a value of all other coordinates equal to zero"*, however as taught by Lipson '426 col.13,

lines 5-20 (i.e... three different axes of a Cartesian coordinate system represent three different attributes, attribute 1, attribute 2 and attribute 3 of an image. Image regions c.sub.1 -c.sub.8 and q.sub.1 -q.sub.8 are plotted along the axis. A distance between the attributes in the query image and attributes in a candidate image are computed. The sum of the distances between the points, c.sub.1 -c.sub.8 and q.sub.1 -q.sub.8 are totaled and the minimum value is selected as the distance corresponding to the best match. Thus the best match is defined as the image having the least amount of deformation and with respect to the query image. The distance is computed as a function of the properties of the query image and the properties of the candidate image...).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Lipson '426 into Perrizo '467 and Ridgley '800 to provide a way, wherein the user further inputs a search defining in the space which have a non-zero value for coordinates (x, y, z), where x, y, and z are search criteria, and then by making a value of all other coordinates equal to zero. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 18, "*displaying search results in a scatter-plot, thereby to reveal a geometric solid with dense and sparse areas, such that the solid is oriented in the three axes, and points which are at the center are related to all three subjects and such that points with a relatively high value in one axis, and relatively low values in the remaining axes will contain data blocks which are relevant only to the term relevant to the one axis, but not to terms relevant to the remaining axes"*, however as taught by Lipson '426 col.13, lines 5-20, also see figure 3C sheet 7 of 30 (i.e... three different axes of a Cartesian coordinate system represent three different attributes, attribute 1, attribute 2 and attribute 3 of an image. Image regions c.sub.1 -c.sub.8 and q.sub.1 -q.sub.8 are plotted along the axis. A distance between the attributes in the query image and attributes in a candidate image are computed. The sum of the distances between the points, c.sub.1 -c.sub.8 and q.sub.1 -q.sub.8 are totaled and the minimum value is selected as the distance corresponding to the best match. Thus the best match is defined as the image having the least amount of deformation and with respect to the query image. The distance is computed as a function of the properties of the query image and the properties of the candidate image. The function used can be, for example, the absolute difference between the property of the i.sup.th query image (denoted as prop(qi)) and the property of the j.sup.th candidate image (denoted as prop(cj)) multiplied by a weight value...).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Lipson '426 into Perrizo '467 and Ridgley '800 to provide a way, wherein displaying search results in a scatter-plot, thereby to reveal a geometric solid with dense and sparse areas, such that the solid is oriented in the three axes, and points which are at the center are related to all three subjects and such that points with a relatively high value in

one axis, and relatively low values in the remaining axes will contain data blocks which are relevant only to the term relevant to the one axis, but not to terms relevant to the remaining axes. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 19, incorporate substantially similar subject matter as cited in claim 18 above, and in further view of the following, and is similarly rejected along the same rationale;

"wherein most significant Web pages are displayed in a most densely populated area....a user navigates documents in the scatter-plot using a hand-held input mechanism", however as taught by Ridgley '800 at col. 5, lines 55-60 (i.e... grid layout of a user interface in accordance with the best mode of implementing the invention. The CONTENT portion 110 of the grid is composed of a three-by-three array of squares 104. Arrays of other dimensions may be used in implementing the invention. Square arrays (i.e. n.times.n arrays, where "n" is a positive integer) are advantageous for a user information interface because of the symmetry of spatial

relationships. Rectangular arrays (i.e. m.times.n arrays, where "m" and "n" are positive integers and "m" is not equal to "n") are also usable for the CONTENT area. A three-by-three array is believed optimal because of the simplicity of its symmetry, and because a three-by-three array is very familiar to the vast majority of users who have used three-by-three arrays in such varied forms as a telephone keypad or numeric keypad (the numbers 1-9).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Ridgley '800 into Perrizo '467 and Lipson '426 to provide a way, wherein user navigates documents in the scatter-plot using a hand-held input mechanism, which is the most significant Web pages are displayed in a most densely populated area. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 20, *" wherein said hand-held input mechanism comprises at least one of a mouse, a touchpad, a light pointer, a keyboard, and a joy stick",* however as

taught by Ridgley '800 at col. 5, lines 55-60 (i.e... a telephone keypad or numeric keypad (the numbers 1-9)...).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Ridgley '800 into Perrizo '467 and Lipson '426 to provide a way, wherein user navigates documents in the scatter-plot using a hand-held input mechanism, which embedded a touchpad. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 21, incorporate substantially similar subject matter as cited in claim 18 above, and in further view of the following, and is similarly rejected along the same rationale;

"...changing a current position and a proximity list", however as taught by Ridgley '800 at col. 2, lines 55-60 (i.e... FIG. 10A is a representation of a "seed atom" concept for thinking and intelligence; FIG. 10B is a schematic for an information appliance using a circular motif...).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Ridgley '800 into Perrizo '467 and Lipson '426 to provide a way, wherein user navigates documents by changing a current position and a proximity list. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

In regard to dependent claim 22, "*during a spatial search, the user positions the current position in a center of the most densely populated area*", however as taught by Ridgley '800 at col. 5, lines 55-60 (i.e... grid layout of a user interface in accordance with the best mode of implementing the invention. The CONTENT portion 110 of the grid is composed of a three-by-three array of squares 104. Arrays of other dimensions may be used in implementing the invention. Square arrays (i.e. n.times.n arrays, where "n" is a positive integer) are advantageous for a user information interface because of the symmetry of spatial relationships. Rectangular arrays (i.e. m.times.n arrays, where "m" and "n" are positive integers and "m" is not equal to "n") are also usable for the CONTENT area. A three-by-three array is believed optimal because of the

simplicity of its symmetry, and because a three-by-three array is very familiar to the vast majority of users who have used three-by-three arrays in such varied forms as a telephone keypad or numeric keypad (the numbers 1-9).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Ridgley '800 into Perrizo '467 and Lipson '426 to provide a way, wherein during a spatial search, the user positions the current position in a center of the most densely populated area. One of the ordinary skill in the art would have been motivated to modify this combination to provide an automated data analysis techniques to uncover previously undetected relationships among data items, wherein the organization of large datasets existing in n-dimensional arrays and, more particularly, to the organization of the datasets into a bit-sequential format that facilitates the establishment of a lossless, data-mining-ready data structure. The best known examples of data mining applications are in database marketing, wherein an analysis of the customer database, using techniques such as interactive querying to optimize portfolios, and in production manufacturing, wherein production processes are controlled and scheduled to maximize profit, as taught by Perrizo '467 at page 1, paragraph [0002]-[0003] (i.e... datasets existing in n-dimensional arrays...).

Response to Argument

4. Applicant's arguments filed June 27, 2005 have been fully considered but they are not persuasive. In response to applicant's arguments on pages 10-24, for unamended claims 1-23, Applicant argues the rejection under 35 USC 103, Obviousness (see Remarks, pages 10-24). To concisely address the elaborate arguments presented, the Examiner respectfully disagrees

for the detailed reasons stated in the rejection of each claim limitation previously presented in Office Action mail date March 25, 2005 (please see rejections for detail). In further support of the Office Action above, please note the following:

Additionally, the main thrust of the applicant's argument is Perrizo '467, in view of Ridgley '800, are not properly combined, and fails to disclose all of the invention limitations, such as spatially indexed in N dimensions and resulting from (newly added claims 32-34) method of wherein said closeness relationship comprises: a relationship of a Euclidean distance between points in an N-dimensional space. Using the broadest reasonable interpretation of the claims, Perrizo '467 page 18, paragraph [0229], discloses a K-nearest neighbor (KNN) classification method, wherein the distance between KNN is measured using the Euclidean and Minkowski metrics, and also by Ridgley '800 col. 6, lines 20-43, also see
Fig. 1, 10A and 10B, discloses a schematic grid layout of a user interface, wherein the Square arrays (i.e. n x n arrays, where "n" is a positive integer) are advantageous for a user information interface because of the symmetry of spatial relationships. Rectangular arrays (i.e. m x n arrays, where "m" and "n" are positive integers and "m" is not equal to "n") are also usable for the CONTENT area. Examiner read the above in the broadest reasonable interpretation to the claim limitation, wherein a relationship of a Euclidean distance function between points and in an N-dimensional space would have been an obvious variant of KNN is measured using the Euclidean and Minkowski metrics and Rectangular arrays (i.e. m x n arrays, where "m" and "n" are positive integers and "m" is not equal to "n"). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Perrizo '467, discloses a system and method for organizing data in an N dimensional array, to include a means of displaying

information according to a location in an N-dimensional space of Ridgley '800. One of the ordinary skill in the art would have been motivated to modify this combination to provide a user interface for finding collecting a vast quantity of information through a user interface, wherein the Square arrays (i.e. n x n arrays, where "n" is a positive integer) are advantageous for a user information interface because of the symmetry of spatial relationships (as taught by Ridgley '800 at col. col. 6, lines 20-43).

Therefor, the rejection deemed to be proper at this time.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc A. Tran whose telephone number is (571) 272-4103. The examiner can normally be reached on Monday through Friday from 11AM to 7PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Herndon R Heather can be reached on (571) -272-4136. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Quoc A. Tran
Patent Examiner
Technology Center 2176
September 9, 2005

William L. Bashore
WILLIAM BASHORE
PRIMARY EXAMINER
9/11/2005